

**PCT**

NOTIFICATION OF TRANSMITTAL
OF COPIES OF TRANSLATION
OF THE INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY
(CHAPTER I OR CHAPTER II
OF THE PATENT COOPERATION TREATY)
(PCT Rules 44bis.3(c) and 72.2)

From the INTERNATIONAL BUREAU

To:

KAWAMIYA, Osamu
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1-chome, Chuo-ku, Osaka-shi, Osaka
5400001
JAPON

Date of mailing (day/month/year)

31 August 2006 (31.08.2006)

Applicant's or agent's file reference

664859

IMPORTANT NOTIFICATION

International application No.

PCT/JP2004/019215

International filing date (day/month/year)

22 December 2004 (22.12.2004)

Applicant

ISOBE, Shinichiro

1. Transmittal of the translation to the applicant.

The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

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外国方式

PATENT COOPERATION TREATY

TRANSLATION

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing
(day/month/year)

Applicant's or agent's file reference
664859

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/JP2004/019215

International filing date (day/month/year)

22.12.2004

Priority date (day/month/year)

24.12.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

ISOBE, Shinichiro

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/JP

Authorized officer

Facsimile No.

Telephone No.

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/JP2004/019215

Box No. I

Basis of this opinion

1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language
_____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).
2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/JP2004/019215

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	2, 3, 5-10, 12-17, 19-21, 24-32	YES
	Claims	1, 4, 11, 18, 22, 23	NO
Inventive step (IS)	Claims		YES
	Claims	1-32	NO
Industrial applicability (IA)	Claims	1-32	YES
	Claims		NO

2. Citations and explanations:

Document 1: JP 9-505464 A (Igen Inc.), 03 June 1997 & EP 722508 A & US 6048687 A & WO 95/08644 A describes using an electrochemical light-emitting label nucleotide consisting of a ruthenium tribipyridine complex in order to detect the target nucleic acid sequence.

Document 2: JP 2001-153870 A (Hitachi Software Engineering Co., Ltd.), 08 June 2001 & EP 1148119 A & US 6482640 B & WO 01/38482 A describes using an electrochemical light-emitting substance consisting of a ruthenium complex, etc. to detect a hybridization reaction.

Document 3: JP 2002-173673 A (Keio University), 21 June 2002 describes an organic EL element that uses a ruthenium complex as a light-emitting material.

Document 4: JP 2002-161135 A (Fuji Photo Film Co., Ltd.), 04 June 2002 describes an organic EL element consisting of a ruthenium complex.

Document 5: JP 2001-288197 A (Fuji Photo Film Co., Ltd.), 16 October 2001 & US 2002/0064782 A & EP 1152008 A describes fluorescent nucleotide consisting of cyanine, melocyanine, or steryl fluorescent dye.

Document 6: JP 2003-532790 A (Coulter International Corp.), 05 November 2003 & US 2002/0037589 A & EP 1303751 A & WO 01/086264 A describe a dye for detection of nucleic acids in an immature red blood cell.

WRITTEN OPINION OF THE
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Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

Claims 1, 4, 11, 18, 22, 23

The EL label described in documents 1 and 2 is one generally used as a light-emitting material for an organic EL element, as described in documents 3 and 4. Therefore documents 1 and 2 are ones in which a biomacromolecule sample such as a nucleic acid, etc. is reacted with a dye used in organic EL and the light emitted from the biomacromolecule is measured. Therefore the inventions of claims 1, 4, 11, 18, 22, and 23 do not appear to possess novelty.

Claims 2, 3, 5-10, 12-17, 19-21, 24-32

When bonding a label compound with a target substance, using a bond such as an amide bond, etc. and introducing a functional group necessary for bonding are very well-known to a person skilled in the art. Therefore bonding the label described in document 1 or document 2 by means of amide bonding, etc. would be obvious to a person skilled in the art.

Also, a dye that has a condensed multi-ring structure consisting of a 5-member ring compound and a 6-member ring compound having a conjugate system is well-known as a dye used in labeling, and is described in document 5 and document 6. Therefore employing a dye that has a condensed multi-ring structure consisting of a 5-member ring compound and a 6-member ring compound having a conjugate system instead of the dyes of document 1 or document 2 would be obvious to a person skilled in the art.

In addition, separating a labeled sample by electrophoresis is commonly practiced. Therefore separating a labeled sample labeled as described in document 1 or document 2 using electrophoresis would be obvious to a person skilled in the art.